National Aeronautics and Space Administration
President's FY 2009 Budget Request Summary

Budget Authority, $ in millions By Appropriation Account By Theme	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Science	**4,609.9**	**4,706.2**	**4,441.5**	**4,482.0**	**4,534.9**	**4,643.4**	**4,761.6**
Earth Science	1,198.5	1,280.3	1,367.5	1,350.7	1,250.9	1,264.4	1,290.3
Planetary Science	1,215.6	1,247.5	1,334.2	1,410.1	1,537.5	1,570.0	1,608.7
Astrophysics	1,365.0	1,337.5	1,162.5	1,122.4	1,057.1	1,067.7	1,116.0
Heliophysics	830.8	840.9	577.3*	598.9	689.4	741.2	746.6
Aeronautics	**593.8**	**511.7**	**446.5**	**447.5**	**452.4**	**456.7**	**467.7**
Exploration	**2,869.8**	**3,143.1**	**3,500.5**	**3,737.7**	**7,048.2**	**7,116.8**	**7,666.8**
Constellation Systems	2,114.7	2,471.9	3,048.2	3,252.8	6,479.5	6,521.4	7,080.5
Advanced Capabilities	755.1	671.1	452.3	484.9	568.7	595.5	586.3
Space Operations	**5,113.5**	**5,526.2**	**5,774.7**	**5,872.8**	**2,900.1**	**3,089.9**	**2,788.5**
Space Shuttle	3,315.3	3,266.7	2,981.7	2,983.7	95.7	-	-
International Space Station	1,469.0	1,813.2	2,060.2	2,277.0	2,176.4	2,448.2	2,143.1
Space and Flight Support	329.2	446.3	732.8*	612.1	628.0	641.7	645.4
Education	**115.9**	**146.8**	**115.6**	**126.1**	**123.8**	**123.8**	**123.8**
Cross-Agency Support	**2,949.9**	**3,242.9**	**3,299.9**	**3,323.9**	**3,363.7**	**3,436.1**	**3,511.3**
Center Management and Operations	1,754.9	2,013.0	2,045.6	2,046.7	2,088.0	2,155.3	2,211.6
Agency Management and Operations	971.2	830.2	945.6	945.5	939.8	950.5	961.3
Institutional Investments	223.8	319.7	308.7	331.7	335.9	330.4	338.3
Congressionally Directed Items	-	80.0	-	-	-	-	-
Inspector General	**32.2**	**32.6**	**35.5**	**36.4**	**37.3**	**38.3**	**39.2**
FY 2008 Rescission**		(192.5)					
NASA FY 2009	**16,285.0**	**17,309.4**	**17,614.2**	**18,026.3**	**18,460.4**	**18,905.0**	**19,358.8**
Year to Year Change		6.3%	1.8%	2.3%	2.4%	2.4%	2.4%

Budgets include all direct costs required to execute the programs. Indirect costs are now budgeted within Cross-Agency Support.

* Deep Space and Near Earth Networks Transfer $256M to SFS in FY 2009.

** FY 2008 Appropriation rescinded $192.475M in prior-year unobligated balances, effectively reducing FY 2008 authority. Not included in totals.

FY 2008 budgets are the enacted levels per the FY 2008 Appropriation as shown in the Agency's FY 2009 Budget Estimates.

Totals may not add due to rounding.

Education

The Office of Education (referred to as Education) partners with academia, professional associations, industry, and other agencies to provide teachers and faculty with experiences that capitalize on the excitement of NASA's missions and provides meaningful, content-rich educational programs to inspire students at all levels to pursue careers in fields related to Science, Technology, Engineering, and Mathematics (STEM). Education's programs strive to reach and connect with youth, and to excite and inspire them into becoming the next generation of scientists, inventors, technicians, and explorers.

Budget Authority ($ millions)	FY 2007 Actual	FY 2008 Enacted	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FY 2009 President's Budget Request	**115.9**	**146.8**	**115.6**	**126.1**	**123.8**	**123.8**	**123.8**
Education	115.9	146.8	115.6	126.1	123.8	123.8	123.8
FY 2008 President's Budget Request	**167.4**	**153.7**	**152.8**	**152.7**	**149.8**	**149.6**	**--**
Education	167.4	153.7	152.8	152.7	149.8	149.6	--
Total Change from FY 2008 President's Budget Request	**-51.5**	**-7.0**	**-37.2**	**-26.6**	**-26.0**	**-25.8**	**123.8**

Note: FY 2009 President's Budget Request is in Direct Dollars and represents the July 2007 Operating Plan for the 2007 Actual column, the 2008 Omnibus Appropriations Act (P.L. 110-161) for the 2008, and the 5-year Proposed Budget Estimates for 2009 through 2013. FY 2008 President's Budget Request is in Full Cost and represents the as-delivered February 5, 2007 Budget Estimate Book. Due to the change from reporting full-cost to direct, NASA's program budgets will appear to have declined.

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Crew Health and Safety	8.1	8.7	8.6	8.6	8.5	8.5	8.5
Education	**115.9**	**146.8**	**115.6**	**126.1**	**123.8**	**123.8**	**123.8**
Education	**115.9**	**146.8**	**115.6**	**126.1**	**123.8**	**123.8**	**123.8**
Education	*115.9*	*146.8*	*115.6*	*126.1*	*123.8*	*123.8*	*123.8*
Elementary and Secondary Education	35.1	23.8	32.1	38.1	35.8	35.8	35.7
Competitive Educational Grant Program	-	11.6	-	-	-	-	-
E-Education	3.6	5.8	6.8	6.7	6.7	6.7	6.8
MUREP	24.7	27.5	28.1	30.7	30.7	30.7	30.7
Higher Education	8.1	9.0	9.5	10.1	10.1	10.1	10.1
EPSCoR	12.8	12.8	8.3	10.0	10.0	10.0	10.0
NASA Space Grant	29.9	35.7	28.7	28.4	28.4	28.4	28.4
Global Climate Change Education	-	7.0	-	-	-	-	-
Informal Education	1.6	-	2.0	2.1	2.1	2.1	2.1
Science Museums and Planetarium Grants	-	7.8	-	-	-	-	-
NASA Visitor Centers	-	5.8	-	-	-	-	-
Cross-Agency Support	**2,949.9**	**3,242.9**	**3,299.9**	**3,323.9**	**3,363.7**	**3,436.1**	**3,511.3**
Center Management and Operations	**1,754.9**	**2,013.0**	**2,045.6**	**2,046.7**	**2,088.0**	**2,155.3**	**2,211.6**
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Facility Services	419.2	465.3	486.1	492.5	485.9	503.4	512.9
Environmental Management	20.1	27.9	28.3	28.8	29.7	30.5	31.3
Institutional Administration	611.6	573.0	591.0	595.3	606.4	624.7	641.2
Safety and Mission Assurance	28.1	41.9	43.5	44.8	46.5	47.8	49.5
SMA Technical Authority	13.9	25.5	25.4	26.0	26.7	27.5	28.4
Science & Engineering	-	200.4	206.4	207.1	214.6	221.4	228.4
Center Investments Account	164.9	92.5	81.3	72.3	81.2	87.3	93.1
Test Services	-	16.9	16.9	16.8	17.1	17.5	18.1
Information Services	226.6	258.2	255.7	252.6	257.2	262.9	267.2
Security Program	94.0	113.1	110.8	111.7	115.4	118.8	121.3
Fabrication	-	9.8	7.0	5.1	5.5	5.7	5.7
Other Personnel Costs	65.0	74.2	76.1	71.4	73.2	74.4	77.2

Overview

The Office of Education (referred to as Education) partners with academia, professional associations, industry, and other agencies to provide teachers and faculty with experiences that capitalize on the excitement of NASA's missions and provides meaningful, content-rich educational programs to inspire students at all levels to pursue careers in fields related to Science, Technology, Engineering, and Mathematics (STEM). Education's programs strive to reach and connect with youth, and to excite and inspire them into becoming the next generation of scientists, inventors, technicians, and explorers.

NASA will continue pursuing following three major goals:
1. Strengthen the Nation's future workforce by identifying and developing programs to reinforce the critical skills and capabilities needed to achieve the Vision for Space Exploration. The program will contribute to the development of the Nation's STEM workforce through a portfolio of initiatives for students at all levels, especially underserved and underrepresented communities.

2. Attract and retain students in STEM disciplines and encourage their pursuit of higher education in disciplines critical to NASA's scientific and technical needs.

3. Engage Americans in NASA's mission by building strategic partnerships and linkages between STEM formal and informal education providers.

Education will continue to implement rigorous standards and evaluation for education activities funded by Headquarters, Centers and Mission Directorates. Education is an active member of the National Science and Technology Council (NSTC) Education Subcommittee and Evaluation Subgroup, and draws from this association approaches to identify rigorous evaluation methodologies for determining the effectiveness of programs, and to implement the recommendations of the Academic Competitiveness Council.

For the FY 2009 budget, Education used a defined process to create a balanced portfolio of investments to address the NASA Strategic Plan, recommendations from the National Research Council (NRC), and education community priorities.

FY 2009 Budget Request

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Budget Changes

Budget Authority ($ millions)	Actual FY 2007	Enacted FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Changes	**-51.5**	**-7.0**	**-37.2**	**-26.6**	**-26.0**	**-25.8**	**123.8**
Education	**-51.5**	**-7.0**	**-37.2**	**-26.6**	**-26.0**	**-25.8**	**123.8**
Programmatic Content	-27.6	26.3	-10.0	--	--	--	123.8
Institutional Adjustments	-23.9	-33.3	-27.2	-26.6	-26.0	-25.8	--

Explanation of Mission Directorate Changes

Education

Education

Programmatic Content:

In FY 2008 budget (enacted), Education received an increase in funding of $26.3M, representing four Congressionally directed initiatives that NASA does not intend to continue in FY 2009 (Competitive Educational Grant Program; Global Climate Change Education; Science Center, Museum, Planetarium Grants; and NASA Visitor Centers) and an increase to three existing programs Space Grant, Experimental Program to Stimulate Competitive Research (EPSCoR), and Classroom of the Future.

In the 2009 Budget, Education was reduced $10 million. Under the standards established by the U.S. Office of Management and Budget (OMB) for the President's Management Agenda (PMA) Performance Improvement Initiative, NASA and OMB conducted a Program Assessment Rating Tool (PART) evaluation in 2007. The Education Mission received an evaluation rating of "Results Not Demonstrated". The PART process highlighted several on-going issues that NASA had recognized, and had expended effort to address but had not completed all the relevant actions. The main highlighted issue was an underdeveloped performance management system that would provide a demonstration of results through consistent monitoring and tracking toward a recognized set of performance metrics, mapped to objectives, and clear baselines from which to measure performance. In light of this rating, funding was removed from the Education programs to apply to higher NASA priorities.

In order to maintain an ideal portfolio identified by the Education Coordinating Committee (ECC), the Office of Education balanced Congressional priorities (ESPCoR, Space Grant, Motivating Undergraduates in Science and Technology Project (MUST)) with the recommendations from the NRC, and the Agency's three framework outcomes. The $10M reduction was distributed across the portfolio to avoid major impact to any one program. Reductions were distributed as follows: Elementary and Secondary Education (reduction of $5.9M); EPSCoR (reduction of $1.7M); and Minority University and Research Program (MUREP) (reduction of $2.4M).

Institutional Adjustments:

FY 2008, NASA incurred a general reduction of $2.2 million and an indirect reduction of $31.1 million.

Mission Directorate:	Education
Theme:	Education

FY 2009 Budget Request

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Theme Budget Changes

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Explanation of Program Changes

Education

The NASA Office of Education initial FY 2007 Budgetary Reductions were based on realignment of funds within the Agency to support Space Exploration. Additional realignments occurred after a directive was received from Congress to increase the Education Budget by $27 million.

In FY 2008 budget (enacted), Education received an increase in funding of $26.3M, representing four Congressionally directed initiatives that NASA does not intend to continue in FY 2009(Competitive Educational Grant Program; Global Climate Change Education; Science Center, Museum, Planetarium Grants; and NASA Visitor Centers) and an increase to three existing programs Space Grant, EPSCoR, and Classroom of the Future.

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Theme Overview

Education's Strategic Portfolio Framework is built around four categories of involvement: inspire, engage, educate, and employ. This Strategic Portfolio Framework will guide the planning, implementation, assessment and validation of the portfolio of programs toward achieving its Outcomes, as identified in NASA's Strategic Performance Plan (the Outcomes have changed some since the Strategic Plan). Education's programs focus on different populations within this framework: educators within the K-12 and higher education communities; the informal education community; and students.

Many of the programs are cross-cutting in nature and design. Educator-focused programs often include student components, and there is often synergy and leverage between formal and informal education activities.

Relevance

Relevance to national priorities, relevant fields, and customer needs:

To ensure the next-generation workforce is fully prepared for challenging scientific and technical careers, the Nation must maintain its commitment to excellence in science, technology, engineering, and mathematics (STEM) education. The May 2005 National Academies report, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," proposed broad recommendations to enhance the science and technology enterprise, including increasing America's talent pool by vastly improving K-12 science and mathematics education. A 2007 review of NASA's Education Program by the National Academies concluded that NASA should continue to engage in education activities at the K-12 level, designing its K-12 activities to capitalize on the primary strengths and resources found in the Mission Directorates. NASA is taking a leading role to inspire student interest in STEM, as few other organizations can, through its unique Mission, workforce, facilities, and research and technology innovations. NASA is also taking a leading role to make an impact in engaging underserved and underrepresented communities in STEM.

Relevance to the NASA Mission and Strategic Goals:

The NASA Education Strategic Coordination Framework a portfolio approach is designed to attract and retain students in ongoing science and technology activities that will facilitate their entry as members of a highly skilled and diverse workforce. Education investments are an important component to establishing a NASA affinity with students and institutions to help ensure workforce availability in needed disciplines.

Education will support efforts to retain STEM educators by increasing long-term professional development opportunities, implementing a bridge project that will: link K-12 and undergraduate student programs within the STEM pipeline; supporting underrepresented students in pursuing STEM careers, and coordinating with other agencies and state collaborative efforts; and evaluate the effectiveness and impacts of its education programs and projects.

Education supports all of NASA's Strategic Goals in its capacity-building activities for a future workforce, and as part of an integrated Agency-wide approach to human capital management.

Relevance to education and public benefits:

As NASA implements its Vision for Space Exploration, which will carry humans back to the Moon, to Mars, and beyond, Education's programs are helping to lay the groundwork. Education will promote learning activities as an integral component NASA's of major missions and research to convey the excitement of involvement in science and technology. Through partnerships with industry and university engineers and scientists, K-12 STEM educators will be leveraging investments by strengthening student affinity towards and success within STEM studies. Improving the STEM capabilities of the Nation's workforce, regardless of career choice, is of great relevance to the public.

Mission Directorate:	Education
Theme:	Education

Performance

Performance Commitments, Current Ratings and Outcome Trends:

Measure #	Description	Contributing Program (s)	Multi-year Outcome ratings FY 04	FY 05	FY 06	FY 07
Strategic Goal	**Supports Multiple Agency Goals**					
Outcome ED-1	**Contribute to the development of the Science, Technology, Engineering and Math (STEM) workforce in disciplines needed to achieve NASA's strategic goals, through a portfolio of investments.**		**None**	**Green**	**Green**	**Green**
APG 9ED1	Support the development of 60 new or revised courses targeted at the STEM skills needed by NASA.					None
APG 9ED2	Serve 132 institutions in designated EPSCoR states.					None
APG 9ED3	Engage 8,500 underrepresented and underserved students in NASA higher education programs.					None
APG 9ED4	Increase the percentage of higher education program participants who have participated in NASA elementary or secondary programs by an additional ten percent above the FY 2007 baseline of eighteen percent.					None
APG 9ED5	Achieve thirty five percent of student participants in FY 2009 NASA higher education programs, will be employed by NASA, aerospace contractors, universities, and other educational institutions.					None
APG 9ED6	Achieve thirty five percent of undergraduate students in FY 2009 NASA higher education programs, move on to advanced education in NASA-related disciplines.					None
Outcome ED-2	**Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers and faculty.**		**None**	**Green**	**None**	**Green**
APG 9ED10	Achieve fifty percent or greater level of interest in science and technology careers among elementary and secondary students participating in NASA education programs.					None
APG 9ED7	Increase the percentage of elementary and secondary educators, who receive NASA content-based STEM resources materials or participate in short-duration activities that use these materials in the classroom by four percent above the FY 2007 baseline of fifty five percent.					None
APG 9ED8	Increase the number of elementary and secondary student participants in NASA instructional and enrichment activities by 10% above the FY 2007 baseline of 408,774.					None
APG 9ED9	Assure seventy percent of elementary and secondary educators who participate in NASA training programs use NASA resources in their classroom instruction, an increase in the FY 2007 baseline of sixty two percent.					None

Mission Directorate:	Education
Theme:	Education

Outcome ED-3	**Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission.**		**None**	**None**	**None**	**Green**
APG 9ED11	Assure that at least 350 museums and science centers across the country actively engage the public through NASA content.					None
APG 9ED12	Assure that twenty percent of the 460 museums and science centers that participate in NASA networks, use NASA resources in programs and exhibits.					None

Uniform and Efficiency Measures:

Measure #	Description	Multi-year Outcome ratings FY 04	FY 05	FY 06	FY 07
Education Theme					
APG 9ED13	Reduce the dollar invested per number of people reached via e-education technologies from FY 2008 amounts.				None
APG 9ED14	Reduce the cost per K-12 program participant over FY2007 amounts by 1%.				None

Mission Directorate:	Education
Theme:	Education

Performance Achievement Highlights:

The following highlights and major activities of FY 2007, listed by project, helped to support Education's Outcomes:

Elementary & Secondary Education
- The Science, Engineering, and Mathematics Aerospace Academy (SEMAA) was recognized by the Ash Institute's Excellence in Government Project as one of the top 17 federal programs in the Nation. A Congressional Recognition Award for Excellence was also given to SEMAA. NASA's SEMAA project supports education Outcomes through a results-driven process that has impacted thousands of youth interested in developing STEM talents.
- A major restructuring of Flight Projects was completed.
- Completed consolidation of projects to increase efficiency and effectiveness in project support.

Higher Education
- Internship / Fellowship Protocol Guidelines were established to help provide equality, efficiency, and balance in the funding, selection and placement of interns within the NASA pipeline, mapping of applicants to NASA competencies, academic preparation, skills, and experiences, and designing of articulation agreements.

Informal Education
- NASA continued partnership efforts in Informal Education.
- NASA Explorer Institute continued to establish linkages that promoted new relationships resulting in creative and improved STEM education in all learning environments.

Minority University Research and Education Project
- Education, in collaboration with the Office of Diversity and Equal Opportunity and the Office of Human Capital Management, provided joint funding for a National Academies study, "U.S. Competitiveness: Underrepresented Groups and the Expansion of the Science and Engineering Pipeline." This study will analyze the rate of change and challenges the Nation currently faces in developing a strong and diverse workforce, identify best practices and the characteristics that make them effective and sustainable, and develop a prioritized list of policy and funding action items with milestones and cost estimates that will lead to a science and engineering workforce that mirrors the Nation's diverse population.
- The project conducted analysis of critical issues affecting under-represented populations and STEM.

e-Education
-A new Kids' Club Web Site was unveiled, featuring animated educational activities for children in grades K-4.
- Twelve visually impaired/blind high school students participated in an innovative program called Rocket On, made possible through a partnership between NASA and the National Federation of the Blind.

Quality

Program Assessment Rating Tool (PART):

In FY 2007, NASA's Education Theme received a PART rating of "Results Not Demonstrated." Many positive attributes were cited and the conclusion was that the Theme attracts students to science and technology careers at NASA. On the other hand, it was cited that NASA lacked complete data on the effectiveness of its Education programs. The Theme did not have sufficient data to document the extent to which participants had taken jobs with NASA or related fields. It did not report on a complete set of performance measures that reflected the desired program Outcomes.

The Office of Education was assigned several program improvements actions specifically:
- Collect performance data consistently and annually for all program activities, reporting performance against a program's established metrics and targets, and using results to improve performance;
- Conduct independent evaluations to assess the Theme's effectiveness and efficiency against the Theme's established metrics and performance goals and applying resources based on the results;
- Offer opportunities not addressed by other agencies, which are unique in their use of NASA's resources and benefits to NASA's Mission, and collaborating with other agencies where appropriate; avoid duplication with other NASA education programs;
- Fill NASA's workforce needs using a stronger effort to consider eligible program participants and facilitate their entry into positions at NASA;
- Establish baselines for all performance metrics; and
- Fully execute the new Education Investment Framework, per the implementation plan, to complete the strategic alignment of the Education portfolio that best supports the Agency strategic direction and the Vision for Space Exploration.

The Office of Education has worked hard in the past six months to assure that its performance measurement is based on relevant data and has clear baselines for its various projects. A process is under development for external independent evaluations to be conducted on a rotating basis across the Office of Education's projects. In 2008, the program will continue to refine its measures and evaluation processes to aid decisions on investments, which assure the alignment and contribution to Education's goals.

Independent Reviews:

Review Type	Performer	Last Review	Purpose/Outcome	Next Review
All	TBD	FY 2005	Determine the extent to which the objectives and intended outcomes of higher education student support programs have achieved their objectives and intended outcomes. Programs to be reviewed: Graduate Student Researchers Program (GSRP); Jenkins Predoctoral Fellowship Program (JPFP); Undergraduate Student Research Program (USRP.) Results will be used to improve the programs and to inform the portfolio review process.	FY 2009
All	TBD	FY 2007	An RCT-based evaluation will be conducted to determine the extent to which intervention programs positively or negatively compare to control groups which do not participate in the program. Evaluations will be conducted for: Aerospace Education Service Project (AESP) and Flight Projects.	FY 2009

Mission Directorate:	Education
Theme:	Education
Program:	Education

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Elementary and Secondary Education	**35.1**	**23.8**	**32.1**	**38.1**	**35.8**	**35.8**	**35.7**
Competitive Educational Grant Program	**0**	**11.6**	**0**	**0**	**0**	**0**	**0**
E-Education	**3.6**	**5.8**	**6.8**	**6.7**	**6.7**	**6.7**	**6.8**
MUREP	**24.7**	**27.5**	**28.1**	**30.7**	**30.7**	**30.7**	**30.7**
Higher Education	**8.1**	**9.0**	**9.5**	**10.1**	**10.1**	**10.1**	**10.1**
EPSCoR	**12.8**	**12.8**	**8.3**	**10.0**	**10.0**	**10.0**	**10.0**
NASA Space Grant	**29.9**	**35.7**	**28.7**	**28.4**	**28.4**	**28.4**	**28.4**
Global Climate Change Education	**0**	**7.0**	**0**	**0**	**0**	**0**	**0**
Informal Education	**1.6**	**0**	**2.0**	**2.1**	**2.1**	**2.1**	**2.1**
Science Museums and Planetarium Grants	**0**	**7.8**	**0**	**0**	**0**	**0**	**0**
NASA Visitor Centers	**0**	**5.8**	**0**	**0**	**0**	**0**	**0**
FY 2008 President's Budget Request	**167.4**	**153.7**	**152.8**	**152.7**	**149.8**	**149.6**	**0**
Education	**167.4**	**153.7**	**152.8**	**152.7**	**149.8**	**149.6**	**0**
Changes from FY 2008 Request	**-51.5**	**-7.0**	**-37.2**	**-26.6**	**-26.0**	**-25.8**	**123.8**

Note: FY 2009 President's Budget Request is in Direct Dollars and represents the July 2007 Operating Plan for the 2007 Actual column, the 2008 Omnibus Appropriations Act (P.L. 110-161) for the 2008, and the 5-year Proposed Budget Estimates for 2009 through 2013. FY 2008 President's Budget Request is in Full Cost and represents the as-delivered February 5, 2007 Budget Estimate Book. Due to the change from reporting full-cost to direct, NASA's program budgets will appear to have declined.

Program Overview

Education will continue to invest in the support of educators who play a key role in preparing, inspiring, exciting, encouraging, and nurturing the youth who will manage and lead the laboratories and research centers of tomorrow.

Education's portfolio of projects are designed to balance services to its target populations - educators within the K-12 and higher education communities; the informal education community; and students - within its Strategic Portfolio Framework categories of inspire, engage, educate and employ.

The Education Program will continue to develop and implement rigorous standards and evaluations for its education activities to determine the effectiveness of its portfolio elements and inform strategic investment decisions.

Mission Directorate:	Education
Theme:	Education
Program:	Education

Program Relevance

Education is the critical connector between NASA's scientists and engineers and the education community. Education translates NASA's missions into educational materials, services, and opportunities for its ultimate delivery to students as well as learners of all ages.

Education's collaboration with NASA Mission Directorates and Centers has assisted teachers and faculty in promoting scientific and technical literacy, and attracting and retaining students in STEM disciplines and STEM careers. Education works with other federal agencies engaged in educational activities, along with public and private partners to leverage the effectiveness and reach of its efforts.

The Education Program's re-aligned and restructured projects support NASA Outcomes ED-1, ED-2, and ED-3.

Plans For FY 2009

The Higher Education and MUREP Projects will continue competitive NASA Research Announcements (NRA), Cooperative Agreement Notices (CANs), and other procurement vehicles, and multi-year grants awarded to institutions, faculty, and students in Agency-relevant research. These projects will focus on strengthening the academic and research infrastructure of Minority Institutions (MI) attracting and preparing students in STEM disciplines, and supporting their completion of undergraduate and graduate degrees, with an ultimate goal of entering careers at NASA or in the Nation's scientific and technical workforce.

NASA Elementary and Secondary Education Project will continue to implement a systemic restructuring and reallocation of budgets to realize efficiencies and cost savings. A business model that includes cost-sharing, sunrise-sunset provisions to funded projects, and insertion of standard processes, tools, and reporting will continue to be implemented. Adjustments can be expected to occur in FY 2009 as a result of realignment, rebalancing and reorganization of several sub-projects.

The e-Education Project will sustain efforts in FY 2009 to: implement studies of key e-Education research questions and technical requirements; develop an R&D roadmap for the next three to five years; pursue partnerships; leverage technology infrastructures to deliver exploration-related content; implement a meta-tagging process for the Education Program to improve access to NASA multi-media content; identify assessment results that provide objective evidence of benefit to targeted audiences.

The Informal Education Project will focus on NASA Explorer Institutes (NEI), its priority initiative. Four categories of NEI projects will be considered for funding in FY 2009 including: Professional Development Workshops; STEM Learning Tools and Products; Infrastructure Development; and Partnerships for Sustainability.

For FY 2009 in general, Education's focus is to accelerate the delivery of its products and services in support of its Outcomes.

Mission Directorate:	Education
Theme:	Education
Program:	Education

Project Descriptions and Explanation of Changes

Elementary and Secondary Education

The Elementary and Secondary Education Project provides K-12 educators with tools, experiences, and opportunities to further their education and participate in unique NASA learning experiences to enhance their knowledge of STEM and inspire students to pursue STEM careers. The project supports the role of educational institutions, which provide the framework to unite students, families, and educators for educational improvement.

Changes: FY 2009 reduction of $5.9 million. Due to Education's score of Results Not Demonstrated on the OMB's PART rating tool, Education funding was reduced by $10M. The Program took into considerations the recommendations provided by the National Academies (NRC) study "NASA's Elementary and Secondary Education Program: Review and Critique". Within the Program the following projects were selected: Flight Projects (reduction of $0.83M); NES (reduction of $4.15M); and SEMAA (reduction of $0.89M).

Competitive Educational Grant Program

The Competitive Educational Grant Program awards grants to public schools and non-profit organizations on a competitive basis. The grants are awarded to help introduce young people to the exciting world of space and engineering, thereby opening the door to future involvement in scientific or higher technology jobs.

Changes: Unrequested (Congressionally Directed) initiative NASA does not intend to continue into FY 2009, based on Omnibus Appropriations Act (P.L.110-161)

e-Education

The e-Education Project sustains the research and development of technology applications, products, and services, and the implementation of technology-enriched infrastructure. These activities are focused on facilitating appropriate and effective technology-based applications to enhance the educational process for formal and informal education.

Changes: None

Minority University Research and Education Project (MUREP)

The Minority University Research and Education Project (MUREP) serves under-represented populations through a wide variety of initiatives. Multi-year grants are awarded to engage minority institutions, faculty and students in research pertinent to NASA missions. The project focuses on retaining underrepresented and underserved students in a STEM discipline through completion of undergraduate or graduate degrees and entry into the scientific and technical workforce.

Changes: FY 2009 reduction of $2.4 million. Due to Education's score of Results Not Demonstrated on the OMB's PART rating tool, Education funding was reduced by $10M. Within this Program, the NASA Administrators Fellowship Project (NAFP) is reduced by $2.4M. NAFP provides the smallest contribution towards the achievement of Outcome 1.

Higher Education

The Higher Education Project focuses on supporting institutions of higher education in strengthening their research capabilities and providing opportunities that attract and prepare increasing numbers of students for NASA-related careers. The research conducted by the institutions will contribute to the research needs of NASA's Mission Directorates. The student projects serve as a major link in the student pipeline helping to "build, sustain, and effectively deploy the skilled, knowledgeable, diverse, and high performing workforce needed to meet the current and emerging needs of government and its citizens."

Changes: None

Experimental Program to Stimulate Competitive Research (EPSCoR)

The NASA Experimental Program to Stimulate Competitive Research (EPSCoR) provides states of modest research infrastructure with funding to develop a more competitive research base within their state and member academic institutions. A total of seven Federal agencies conduct EPSCoR programs. The goal of NASA EPSCoR is to develop academic research activities that are long-term, self-sustaining, and nationally competitive for non-EPSCoR research awards. There are 26 jurisdictions or states, including Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, West Virginia, Wyoming, and the Commonwealth of Puerto Rico, eligible to participate in the NASA EPSCoR program.

Changes: FY 2009 reduction of $1.7 million. Due to Education's score of Results Not Demonstrated on the OMB's PART rating tool, Education funding was reduced by $10M. The reduction was distributed across all Outcomes to avoid major impact to any one area. Within Higher Education, the impacted program is EPSCoR with a reduction of $1.7M.

NASA Space Grant

The National Space Grant College and Fellowship Program, also known as Space Grant, is a national network of colleges and universities. These institutions are working to expand opportunities for Americans to understand and participate in NASA's aeronautics and space projects by supporting and enhancing science and engineering education, research and public outreach efforts. The Space Grant national network includes over 850 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies. These affiliates belong to one of 52 consortia that fund fellowships and scholarships for students pursuing careers in science, mathematics, engineering and technology, or STEM, as well as curriculum enhancement and faculty development. Member colleges and universities also administer pre-college and public service education projects in their states.

Changes: None

Global Climate Change Education

The Global Climate Change Education Project is a competitive program to educate students on global climate change as recommended by the National Academies' Earth Decadal Survey.

Changes: Unrequested (Congressionally Directed) initiative NASA does not intend to continue into FY 2009, based on Omnibus Appropriations Act (P.L.110-161)

Informal Education

The Informal Education Project inspires learning, particularly by students, informal educators, and the general public by promoting the use of NASA-specific science, technology, engineering or math (STEM), in order to expand the nation's future STEM workforce. The project provides funding for activities that support the development of STEM literacy materials/handouts that are standards based, fosters networks and alliances of the NASA Centers with private and public informal learning providers; and promotes partnerships between informal and formal educational institutions.

Changes: None

Science Museums and Planetarium Grants

The Science Museums and Planetarium Grants program is a completive program authorized by section 616 of P.L. 109-155 for science museums and planetariums to enhance programs related to space exploration, aeronautics, space science or microgravity.

Changes: Unrequested (Congressionally Directed) initiative NASA does not intend to continue into FY 2009, based on Omnibus Appropriations Act (P.L.110-161)

Visitor Centers

The Visitor Centers Project is for the development of educational activities at NASA's field centers, as proposed by the Senate. Funding is provided to each Center's official visitor center for development of educational activities, as well as exhibits, in science, technology, engineering, and mathematics.

Changes: Unrequested (Congressionally Directed) initiative NASA does not intend to continue into FY 2009, based on Omnibus Appropriations Act (P.L.110-161)

Mission Directorate:	Education
Theme:	Education
Program:	Education

Program Commitments

Commitment/Output FY 2009	Program/Project	Changes from FY 2008 PB Request
Enable eligible jurisdictions to compete successfully for NASA research & technology opportunities	Experimental Project to Stimulate Competitive Research (EPSCoR)	Project value reduced $1.7M
Promote a network of state-based consortia to promote NASA's interests throughout the country	National Space Grant College and Fellowship Project (Space Grant)	No change in project value
Place undergraduate students at NASA centers for 10-week internship or 15-week semester internship	Undergraduate Student Research Project (USRP)	No change in project value
Support graduate students pursuing master or doctoral degrees in disciplines relevant to NASA	Graduate Student Researchers Project (GSRP)	No change in project value
Achieve broad-based competitive aerospace research capability among the Nation's minority instit	University Research Centers (URCs)	No change in project value
Produce leadership for building capacity at MIs and prepare students to compete in STEM workforce	NASA Science and Technology Institute for Minority Institutions (NSTI-MI)	No change in project value
Respond to need of 2 & 4 year minority institutions to strengthen STEM curricula related to NASA	Curriculum Improvement Partnership Award for Integration of Research (CIPAIR)	No change in project value
Enhance professional development of NASA employees and STEM faculty of minority service institutions	NASA Administrator's Fellowship Project (NAFP)	Project value reduced $2.4M
Create opportunity for minority, women, & individuals with disabilities to pursue graduate education	Harriet G. Jenkins Predoctoral Fellowship Project (JPFP)	No change in project value
Enhance the education infrastructure at the Nation's 35 Tribal Colleges and Universities	Tribal Colleges (TCUs)	No change in project value
Target & support underserved populations in diverse geographic locations; bring together educators, administrators, students (in classroom grades 4-9) and families in sustained STEM involvement with NASA's education programs across United States	Elementary & Secondary Education Program-NASA Explorer Schools (NES)	Project value reduced $4.2M
Plan for 100 undergraduates across nine centers and JPL	Motivating Undergraduates in Science & Technology (MUST)	No change in project value
Target & support underserved populations in diverse geographic locations; bring together educators, administrators, students (in classroom grades 4-9) and families in sustained STEM involvement with NASA's education programs across United States	Elementary & Secondary Education Program	Program value reduced $5.9 M
Technical direction for 24 SEMAA sites, host student tours/presentations, and national conference	Science, Engineering, Mathematics & Aerospace Academy (SEMAA)	No change in project value
Nationwide infrastructure for customized professional development	Aerospace Education Services Project (AESP)	No change in project value
STEM pathways for eligible U.S. citizens with emphasis on underrepresented & underserved groups	Interdisciplinary National Science Project Incorporating Research & Education Experience (INSPIRE)	No change in project value

Opportunities for K-12 students to gain hands-on experience as payload investigators using NASA fligh	Education Flight Projects	No change in project value
Serve schools in every state and add up to 50 new teams	NASA Explorer Schools (NES)	No change in project value
Advance technologies that support well-educated and highly skilled workforce	NASA Learning Technologies (NLT)	No change in project value
Implement additional options for accessing Web-based learning services from the Education Portal	NASA Educational Technology Services (NETS)	No change in project value
Evaluate new technologies available commercially for applications in educational environments	NASA-sponsored Classroom of the Future (COTF)	No change in project value
Partnerships/alliances for students/citizens to become participants in NASA R&T and Space Exploration	NASA Explorer Institutes (NEI)	No change in project value
Train students with disabilities and underrepresented/underserved 6-16 students through MSI (replaced by #10 above)	Small Projects	No change in project value
Harness the collective resources of NASA, institutions of higher education, science centers, museums, primary & secondary schools to bridge the education gap for historically underserved and underrepresented K-12 youth in STEM	Elementary & Secondary Education Program - SEMMA	Project value reduced $0.9M
Provides students with unique opportunity to talk (amateur radio) directly with Astronauts on ISS while they orbit Earth and enable thousands of students to photograph & examine (ISS EarthKAM) Earth from the unique perspective of space	Elementary & Secondary Education Program - Education Flight Projects	Project value reduced 0.8M

Mission Directorate:	Education
Theme:	Education
Program:	Education

Program Management

The Assistant Administrator for Education is responsible to the NASA Administrator for NASA's education portfolio and serves as NASA Education Officer. Reports directly to Chief of Strategic Communication, and manages all education responsibilities.

Project	Management Responsibility	NASA Center Performers	Cost-Sharing Partners
Informal Education Project	NASA HQ Office of Education	JPL, NASA Centers	Arizona State University and ArtReach International, AMES-The Navajo Nation; National Park Service, University of California -Berkeley, and Ideum, GSFC; College of Charleston, S.C., U.S. Space and Rocket Center, Ala.; Girl Scouts U.S.A.; Houston Museum of Natural Science, Rice University and Starlight Productions, JSC; Denver Museum of Nature and Science; Morehead Planetarium and Science Center; University of Alabama -Huntsville, National Association of Rocketry, and 4-H; Lunar Planetary Institute, Texas, Haltom City Public Library, Texas, and Librarians from Pennsylvania, Delaware and Maryland; and American Museum of National History, Over 200 Museums.
e-Education Project	NASA HQ Office of Education	NASA Centers	NSF, Dept. of Education, DoD, Dept. of Energy, Office Max, Lorain, County Joint Vocational School
Elementary & Secondary Education Project	NASA HQ Office of Education	NASA Centers	Educational organizations and institutions provide professional development opportunities and in-kind contributions to NES schools; OSU; Network of Educator Astronaut Teachers, AOL, Univ CA-San Diego, AMSAT, ARISS International Team
Minority University Research and Education Project	NASA HQ Office of Education	NASA Centers	
Higher Education Project	NASA HQ Office of Education	NASA HQ, NASA Centers	Fifty-two university-based Space Grant Consortia in all 50 states, Puerto Rico and District of Columbia require 100 percent matching funds on non-fellowship awards. Twenty-five selected juristictions and a total of seven federal agencies.

Mission Directorate:	Education
Theme:	Education
Program:	Education

Acquisition Strategy

The Education Program will continue to facilitate its programs and projects through competitive NASA Research Announcements, Cooperative Agreement Notices and other procurement vehicles, and multi-year competitive grant awards to institutions, faculty and students in Agency-relevant research. Below are projects with agreements to perform work under these various mechanisms.

Informal Education Project: External grant awardee
e-Education Project: External grant awardees, UNITeS Contract
Elementary & Secondary Education Project: NASSMC, NSTA, U.S. Space & Rocket Center, external grant awardee
Minority University Research and Education Project: External grant awardees
Higher Education Project: External grant awardees

Independent Reviews

Review Type	Performer	Last Review	Purpose/Outcome	Next Review
All	TBD	FY 2005	To determine the extent to which the objectives and intended outcomes of higher education student support programs have achieved their objectives and intended outcomes. Assess: Graduate Student Researchers Program (GSRP); Jenkins Pre-doctoral Fellowship Program (JPFP); Undergraduate Student Research Program (USRP). Results will be used to improve the program and to inform the portfolio review process.	FY 2009
All	TBD	FY 2007	An RCT-based evaluation will be conducted to determine the extent to which interventions positively or negatively compare to control groups not participating in the program. Assess: Aerospace Education Service Project (AESP); Flight Projects.	FY 2009

Program Risk Management

Title	Risk Statement	Risk Management Approach and Plan
Affiliation Risk	The primary risk is loss of affiliation with students, teachers, faculty, education administrators, and institutions at all educational levels. Without strong affiliation, there is reduced potential for students to enter into the scientific and technical disciplines needed at NASA and in the Nation's workforce.	Education Program will monitor and mitigate program & project risks through continual evaluation of program & project performance and relevance, adjusting the portfolio to ensure an appropriate mix.

Cross-Agency Support Programs

Cross-Agency Support Programs: Education

	Green	Yellow	Red	White
3 Outcomes	3 (100%)	0	0	0
10 APGs	10 (100%)	0	0	0

Responsible Mission Directorate

Cross-Agency Support Programs (CASP)

Contributing Theme

Education

Theme Description

The Education Theme partners with academia, professional associations, industry, and other agencies to provide teachers and faculty with experiences that capitalize on the excitement of NASA's missions. It also offers involvement in NASA's research efforts to encourage students to pursue higher education in science, technology, engineering, and mathematics, ensuring a future supply of highly trained people.

PART Assessment Rating

Theme	Last Year Assessed	Overall Rating	Program Purpose and Design	Strategic Planning	Program Management	Program Results/ Accountability
Education	2007	Results Not Demonstrated	100%	88%	60%	33%

NASA's Office of Education works through strategic partnerships and linkages between formal and informal education providers to strengthen the Nation's future workforce. Using the excitement of NASA's missions to inspire and capture the imagination of students, NASA programs and learning materials encourage students to pursue studies and careers in science, technology, engineering, and mathematics (STEM). NASA offers a progression of educational opportunities for students, teachers, and faculty that promote STEM literacy, help to attract and retain students in STEM disciplines, and improve awareness of NASA's Mission. Education's collaboration with the NASA Mission Directorates and Centers, other federal agencies engaged in educational activities, and various public and private partners helps to leverage the effectiveness and reach of its programs.

Benefits

NASA's landmark achievements in air and space, made possible by scientific excellence and technical innovation, have deepened humankind's understanding of the universe while yielding down-to-Earth advances in air travel, health care, electronics, computing, and more. These achievements ultimately share a single source—education. NASA's Office of Education uses NASA's unique missions and vast scientific and technical experience to inspire and motivate America's future leaders.

To achieve NASA's Strategic Goals, the Agency must ensure a pipeline of highly skilled, diverse individuals. In the near-term, NASA will meet workforce needs by additional training for current employees and recruiting employees with skills and capabilities in recent research and technology fields into the Agency. To meet long-term workforce needs, NASA's Education programs help inspire students at all levels to pursue STEM-related careers, providing professional development opportunities to STEM teachers, and developing interesting STEM content for the classroom, the Web, and informal learning environments like museums and community-based organizations.

Risks to Achieving Education's Outcomes

Budget stability is the greatest challenge facing the Education Program. To implement its plans with strategic partners, NASA must ensure that it can deliver on its commitments. Continuing and developing new partnerships with formal and informal education providers, as well as attracting and retaining STEM students in success-oriented programs requires consistent and sustained support.

FY 2008 Performance Forecast

- NASA will re-align and restructure projects within Education to focus and accelerate products and services to meet NASA's needs.

Outcome ED.1: Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goals through a portfolio of programs.

FY04	FY05	FY06	FY 2007
None	13.2 Green	ED-1 Green	**Green**
None	13.3 Green		

The Office of Education provides opportunities to help students and educators gain hands-on experience in a range of STEM-related areas through NASA internships, fellowships, and research experiences. The goal is to give students the motivation, inspiration, and experience they need to serve the Nation's current and future workforce needs. In FY 2007, Education significantly exceeded several of its award targets: more than 1,000 competitive study opportunities to higher education students; more than 800 study opportunities, including 538 Space Grant consortia, to underserved students, teachers, and faculties; and 139 grants to 50 underrepresented and underserved institutions.

Education initiated a study of previous student participants in NASA education opportunities and its effects on the NASA workforce. Education continues to work with NASA's Office of Human Capital Management's data system to collect, analyze, and report on student participants who have entered the NASA workforce. Additionally, NASA is redesigning its data system to include a student participant tracking system and process. There is no federal data collection system that supports this process.

FY 2007 Annual Performance Goals	FY04	FY05	FY06	FY 2007
Award 1,000 competitive internships, fellowships, and research opportunities for higher education students and faculty in STEM disciplines.	None	None	6ED3 Green	**7ED1 Green**
Award 270 competitive scholarships, internships, fellowships, and research opportunities for underrepresented and underserved students, teachers and faculty in STEM disciplines.	None	None	6ED6 Green	**7ED2 Green**
Provide 95 grants to enhance the capability of 50 underrepresented and underserved colleges and universities to compete for and conduct basic or applied NASA-related research.	None	None	6ED7 Yellow	**7ED3 Green**
Collect, analyze, and report longitudinal data on student participants to determine the degree to which participants enter the NASA workforce or other NASA-related career fields.	None	None	6ED5 Green	**7ED5 Green**

Outcome ED-2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty.

FY04	FY05	FY06	FY 2007
None	None	None	**Green**

A challenging budget year required the Office of Education to set programmatic priorities which resulted in the funding of projects with the highest contribution potential toward its goals. The Office of Education successfully conducted 10 Educator Astronaut workshops, involving more than 130 educators, and selected and supported 25 additional schools to participate in the NASA Explorer Schools program. Although the Explorer School target to select 50 new schools was not feasible, the objective to maintain a steady-state total of 100 participating schools was met.

Through ISS EarthKAM students were able to perform simple (partial) experiments by taking photographs of Earth using the Web to direct a digital camera during select spaceflights and from the ISS. ISS EarthKAM is a NASA-sponsored research program that provides stunning, high-quality photographs of the planet. These simple student experiments (more than 100 in FY 2007) involved approximately 3,600 middle school students and 54 undergraduate students in authentic, first-hand NASA mission activities.

FY 2007 Annual Performance Goals	FY04	FY05	FY06	FY 2007
Conduct 10 Educator Astronaut workshops, involving approximately 200 educators.	None	None	None	**7ED6 Green**
Select and support 50 additional schools to participate in the NASA Explorer Schools program, maintaining the total number at 100.	None	5ED14 Green	None	**7ED7 Green**
Select 100 student experiments, involving 1,000 students, to participate in the Flight Projects program.	None	None	None	**7ED8 Green**

Outcome ED-3: Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission.

FY04	FY05	FY06	FY 2007
None	13.5 Green	None	**Green**

The Office of Education collaborated with NASA's Office of Public Affairs, Office of Communications Planning, Mission Directorates and Field centers to develop partnership strategies and activities to enhance the capabilities of the informal education community. Activities and programs were structured to provide access to NASA staff, research, technology, information and facilities as the means for inspiring the next generation of explorers. 350 museums and science centers were actively engaged in major NASA events in FY 2007. The NASA Space Grant consortium supported 214,106 individuals in informal education projects and activities this year. Additionally, 1,750 informal education providers in organizations as diverse as community and youth groups, astronomy clubs, libraries, and the Boy and Girl Scouts used NASA resources in their programming.

The Office of Education also positioned its E-Education Program to serve as an important linchpin across its portfolio. E-Education was able to advance and support education product reviews, assist approved products in meeting 508-compliancy prior to electronic posting in the NASA Portal, and assist products in meeting standards of the Agency's Communication Materials Review. With a limited budget and the momentum gained from E-Education, three of the four E-Education projects contributed toward digitizing and providing meta-tags to over 10 percent of NASA's approved learning materials using technology-enabled learning systems. Each project had a unique niche in this effort to deliver materials to the end user.

FY 2007 Annual Performance Goal	FY04	FY05	FY06	FY 2007
Digitize and meta-tag 10 percent of NASA's approved learning materials to be delivered using technology-enabled learning systems.	None	None	None	**7ED9 Green**

Efficiency Measures

FY 2007 Annual Performance Goals	FY04	FY05	FY06	FY 2007
Collect, analyze, and report that 100% of grantees annually report on their accomplishments.	None	None	6ED11 Green	**7ED11 Green**
Peer review and competitively award at least 85%, by budget, of research projects.	4ED24 Green	5ED19 Green	6ED12 Red	**7ED12 Green**